

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method of modeling of the visible world using full-surround image data, said method comprising:

selecting a view point within a p-surface;

selecting a direction of view within the p-surface;

texture mapping full-surround image data onto said p-surface such that the resultant texture map is substantially equivalent to projecting full-surround image data onto the p-surface from said view point to thereby generate a texture mapped p-surface; and

displaying a predetermined portion of said texture mapped p-surface.

2-16. (Cancelled)

17. (Previously Presented) The method of claim 1, wherein the p-surface comprises polygons approximating a partial sphere.

18. (Previously Presented) The method of claim 1, wherein the p-surface comprises one or more polygons such that there exists a half-space for each polygon, and wherein the intersection of all such half-spaces includes at least one point in common.

19. (Previously Presented) The method of claim 18, wherein a point is within the p-surface if it is included in the intersection.

20. (Previously Presented) The method of claim 1, wherein the p-surface comprises one or more polygons, and wherein a point is within the p-surface if it is included in the union of a given set of half-planes, wherein the set includes no more than one half-plane per polygon.

21. (Previously Presented) The method of claim 1, wherein the p-surface comprises one or more polygons, and wherein a point is within the p-surface if it is included in the intersection of a given set of half-planes, wherein the set includes no more than one half-plane per polygon.

22. (Previously Presented) The method of claim 1, wherein the full-surround image data is a sample of incoming image data.

23.-42 (Cancelled)

43. (New) A method of modeling a hemispheric view, said method comprising:

capturing a first texture p-surface data set approximating a first hemisphere portion derived from a distorted view captured from a first wide-angle lens, said first texture p-surface data set comprising at least a portion of full-surround data;

selecting a view point within the p-surface;

selecting a direction of view within the p-surface;

texture mapping the full-surround image data to a triangulation approximating the first hemisphere onto the p-surface substantially equivalent to projecting the full-surround image data onto the p-surface from said view point;

generating a texture mapped p-surface corresponding to the selected view; and

displaying the selected view of the texture mapped p-surface.

44. (New) The method of Claim 43, wherein the full-surround data includes a full hemisphere.

45. (New) The method of Claim 43, wherein the full-surround data includes a partial hemisphere.

46. (New) The method of Claim 43, further comprising steps of:

capturing a second texture p-surface data set approximating a second hemisphere portion derived from a second wide-angle lens, said second texture p-surface data set comprising a portion of full-surround data; and

combining the first p-surface texture data set and the second p-surface texture data set to generate the full-surround data.

47. (New) The method of Claim 46, wherein the full-surround data includes a full sphere.

48. (New) The method of Claim 46, wherein the full-surround data includes a partial sphere.

49. (New) The method of Claim 43, further comprising steps of:

capturing a second texture p-surface data set approximating a second hemisphere portion derived from the first wide-angle lens after movement to a second view, said second p-surface texture data set comprising a portion of full-surround data; and

combining the first texture p-surface data set and the second texture p-surface data set to generate the full-surround data.

50. (New) A method of modeling an image from a wide-angle lens, said method comprising:

texture mapping image data from the wide-angle lens onto a triangulation of at least a portion of a first hemisphere of full-surround data onto a p-surface;

selecting a viewpoint within the p-surface;

selecting a direction of view within the p-surface;

selecting a perspective of view;

generating a texture mapped p-surface corresponding to the selected view from the selected perspective using the full-surround data; and

displaying the generated view of the texture mapped p-surface.

51. (New) The method of Claim 50, wherein the full-surround data includes a full hemisphere.

52. (New) The method of Claim 50, wherein the full-surround data includes a partial hemisphere.

53. (New) The method of Claim 50, further comprising the steps of:  
texture mapping image data from the wide-angle lens onto a triangulation approximating at least a portion of a second hemisphere of full-surround data onto a p-surface;

combining the full-surround data onto a combined p-surface of the portions of the first hemisphere and the second hemisphere to provide a full-surround data set of at least a portion of a sphere including more than a hemisphere.

54. (New) The method of Claim 51, wherein the full-surround data includes a full sphere.

55. (New) The method of Claim 51, wherein the full-surround data includes a partial sphere.

56. (New) The method of Claim 50, further comprising the steps of:  
texture mapping image data from a second wide-angle lens onto a triangulation approximating at least a portion of a second hemisphere of full-surround data onto a p-surface;

combining the full-surround data onto a combined p-surface of the first hemisphere and the second hemisphere to provide a full-surround data set of at least a portion of a sphere including more than a hemisphere.

57. (New) The method of Claim 50, further comprising the steps of:  
texture mapping image data from a nth wide-angle lens onto a triangulation approximating at least portion of a nth hemisphere of full-

surround data onto a p-surface, wherein n designates one of a y number of wide-angle lens which collectively capture overlapping parts of at least a portion of the y hemispheres of image data;

combining the full-surround data onto a combined p-surface of the first hemisphere and the nth hemisphere to provide a full-surround data set of at least a portion of a sphere including more than a hemisphere.

58. (New) The method of Claim 51, wherein the full-surround data includes a full sphere.

59. (New) The method of Claim 51, wherein the full-surround data includes a partial sphere.